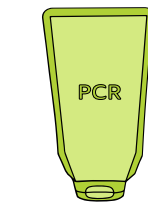


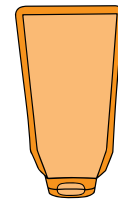
STREAMLINED LIFE CYCLE ASSESSMENT* MAYONNAISE PACKAGING CASE STUDY

MAYONNAISE PACKAGE COMPARISON

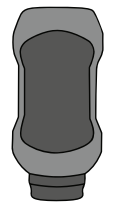
Mayonnaise is a popular condiment sold in a variety of packaging formats. Two packaging formats for the sandwich spread were evaluated with a cradle-to-grave boundary for this Life Cycle Assessment study: an inverted PET bottle and the premade STANDCAP Pouch, an eco-friendly inverted flexible pouch.



PCR STANDCAP



STANDCAP

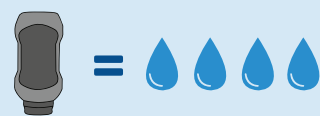
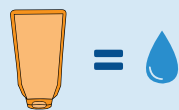


INVERTED PET
BOTTLE



Water Consumption

Due to the minimal amount of water needed for its laminating and extrusion process, the premade STANDCAP Pouch with PCR uses less water **(-79.9%)** than the rigid PET bottle does for its cooling molds.



Greenhouse Gas Emissions

Due to its lighter weight and less energy intensive manufacturing process, the premade STANDCAP Pouch shows a large reduction in GHG emissions **(-62.4%)** compared to the stretch blow molding and heating used to create a rigid container. The use of PCR results in an additional emission reduction **(-64.4%)**.



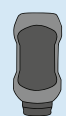
0.0679

KG-CO₂ EQUIV



0.0719

KG-CO₂ EQUIV



0.1911

KG-CO₂ EQUIV



Fossil Fuel Consumption

Because of its lighter weight, the premade STANDCAP Pouch uses less than half the fossil fuel **(-58%)** as the rigid PET mayonnaise container. The use of PCR results in an additional overall fossil fuel reduction **(-62.1%)** when compared to the rigid bottle.



1.39

MJ-EQUIV



1.54

MJ-EQUIV



3.66

MJ-EQUIV

END OF USE SUMMARY

SOURCE REDUCTION BENEFITS

According to the U.S. EPA Waste Hierarchy, the most preferred method for waste management is source reduction and reuse.

A major benefit of flexible packaging is the high product-to-package ratio that it offers.

RECOVERY BENEFITS

PCR
STANDCAP



1x

amount of material ending up
as municipal solid waste

STANDCAP



1x

amount of material ending up
as municipal solid waste

INVERTED
PET BOTTLE



1.9x

amount of material ending up
as municipal solid waste

High product-to-package ratio:

95.0%

Product weight

5.0%

Package weight

95.0%

Product weight

5.0%

Package weight

Low product-to-package ratio:

89.2%

Product weight

10.8%




Package weight

While many multi-material flexible packages are not yet recovered and re-cycled in any significant amount, they still result in a substantial reduction in the amount of material sent to landfill versus other types of packaging.

The inverted PET container results in nearly **2X** as much landfilled waste versus the premade STANDCAP Pouch and PCR version **(-47.4%)**.

IMPLICATIONS

The premade STANDCAP Pouch has a number of sustainability benefits when compared to a rigid inverted container or PET jar for mayonnaise. These include lower fossil fuel and water use, GHG emissions, better efficiency of materials and considerably less material discarded at end-of-life.

FORMAT	FOSSIL FUEL CONSUMPTION (MJ-EQUIV)	GHG EMISSIONS (KG-CO ₂ EQUIV)	WATER CONSUMPTION (L)	PRODUCT-TO-PACKAGE RATIO (%)	PKG LANDFILLED (G/1,000 KG MAYO)
PCR STANDCAP POUCH 	1.39 (-62.1%)	.06793 (-64.4%)	19.19 (-79.9%)	19:1:1 (95.0% : 5.0%)	52,381 (-47.4%)
STANDARD STANDCAP POUCH 	1.54 (-57.8%)	.07191 (-62.4%)	22.12 (-76.8%)	19:1:1 (95.0% : 5.0%)	52,381 (-47.4%)
INVERTED PET BOTTLE 	3.66	.1911	95.29	8:3:1 (89.2% : 10.8%)	99,515



For more information and methodologies of assessments, please visit www.flexpack.org or www.glenroy.com to download Glenroy's "A Streamlined Life Cycle Assessment Comparison for the Glenroy Premade STANDCAP Pouch in the Sauces and Personal Care Market versus Rigid Packaging Options" report and refer to pages 7-10.